MagiCAD for Revit

Release notes for version 2022 UR-1

18/10/2021





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1 New features

1.1 Common

Revit Space name and number added to clash report.

Space name and number are now included when we make a pdf or excel report from BCF manager. In that way it is much easier to locate a an issue from BCF manager.

Topic title:	Clash-000013				
Topic type:	Hard clash				
Topic status:	New clash				
Last:	15-09-2021 16:33:	23			
Axis number:	3-D/4-E				
Space:	Toilet 57				
	ATT				
Component name	Discipline	Category	Level	System	Element Id
626009311010	Piping	Plumbing Fixtures	01_Stueplan		3159177
magi_pipe_fe_elbow_short_001	Piping	Pipe Fittings	01_Stueplan	BK 1	3188172

We have several information that helps us identify where and what is clashing. Partly we have axis numbers that can be used in plan views. We have Revit Element Id that can be used in big models via select by Element Id. Finally now we also have space names and numbers

Segment Adjustment is unchecked by default

At the request of the users, we have changed the default selections in the "Segment Adjustment" dialog.

🙆 Segment Adjustment 🛛 🕹
Category filter Ducts Pipes Cable trays Conduits
Top Center Bottom
User defined bottom offset 3000 mm
✓ With insulation
┌ 🗹 Horizontal spacing
Center to center Center Cent
Round up between round segments: 10 mm
S1= 400 mm S2= 100 mm

The vertical adjustment is now unchecked by default. The latest used setting is stored in the project and is loaded when Revit is reopened.



The branch copy function is improved to copy X-branches and now it changes reference levels according to the model.

The time saving feature to copy or move a branch is improved. Now we can also copy an X-branch by selecting the two directions and point out the new placement.

If we copy a branch from one level to another, it also updates reference level according to placement in the model.

In combination with smart move, we can get this new branch on next level in exact placement.





In a plan view

To another level

New information transferred to MagiCAD from product database

New data is transferred from the product database to MagiCAD. This data can then be used in BOM lists and shared with structural designer for load calculations in buildings.

The new data is MC Weight MC Manufacturer Article Number MC Description of Type

For the new products these parameters are added when the product loaded to dataset and installed to the project.

For the existing products the data is added when the product is reread from database to Revit project and "Update parameters" method is used.

Improvements for controlling the export of empty properties

In earlier versions of MagiCAD the empty text properties are not exported to IFC if "Do not export empty properties" is checked.

In this version this is expanded to support the numerical properties, which are not exported if they are "empty".

System parameters are now also available in Merge parameter & Object ID

System parameter selection is now possible for the merge parameter configurations. There is also an option to fetch data only from primary connector system, or from all.

Running indexes between two elements

Running index supports "Branch (select first and last element)" option for the automatic index assignment.



1.2 New features for heating, piping and ventilation

New fields available in reports - comments and RI

For easy reference to the calculation reports, new columns "Comment" and "Running index" have been added to the report of all the calculations. Initially they are now shown, but can be set visible by right clicking the title line.

										~				3					
pply					Outdoor s	upply				Genera	results			3	Calo	ulate resultin	g flow for unbal	anced terminals	
tract					Outdoor e	xhaust													
																	Update bala	ncing	
on	Level	Node	Туре	Product	Size	L (m)	qv I/s]	v [m/s]	dpt [Pa]	Kfactor	dp/L [Pa/m]	pt [Pa]	pst [Pa]	adj.	qv [%]	Warnings	Comment	Running index	^
4	Floor 1	79	SUPPLY	COLIBRIC	125 (L)		40.0	3.3	95.8			95.8		0.32	100			ST-17	-
•	Floor 1		DUCT	SR-315	315	0.1	200.0	2.6	0.0	1	0.28	112.8	108.9			1	1		_
	Floor 1		REDUCER	RCFU-315-	315/250	_	200.0	26	0.2	0.032		112.9					-		-
	Floor 1		DUCT	SR-250	250	ON N	lagiCAD -	Select Rep	port Colu	mns							×		_
-	Floor 1		DUCT	SR-250	250														-
t	Floor 1	80	TAP	PSU-250-1	250/125		Node num	ber						^	N	love up			
	Floor 1		DUCT	SR-125	125		System co	de						-					-
2	Floor 1		BEND-45	BU-125-45	125		Part type								Mo	ve down			_
1	Floor 1		DUCT	SR-125	125		Duct series									Show			-
ζ.	Floor 1		BEND-45	BU-125-45	125	1 😫	Product co	de								SILVIT			
1	Floor 1		DUCT	SR-125	125	1 段	Length									Hide			-
4	Floor 1	81	SUPPLY	COLIBRI C	125 (L)	118	Insulation											ST-20	
	Floor 1		DUCT	SR-250	250	111	Flow set v	alue (")											_
-	Floor 1		DUCT	SR-250	250		Flow												
t.	Floor 1	82	TAP	PSU-250-1	250/125		Diversified	flow value	0										
1	Floor 1	1 20	DUCT	SR-125	125		Diversity %	(7)											
ξ.	Floor 1		BEND-45	BU-125-45	125	1 🖾	Velocity												_
1	Floor 1		DUCT	SR-125	125	1 👸	I otal press	ure drop											
٢.	Floor 1		BEND-45	BU-125-45	125	1 😫	Pressure d	oencers											
1	Floor 1		DUCT	SR-125	125	1 🛱	Total press	ure level											
4	Floor 1	83	SUPPLY	COLIBRI C	125 (L)		Static pres	sure level										ST-21	
-	Floor 1	1	REDUCER	RCU-250-2	250/200	1 🖾	Adjustment	value (")											_
	Floor 1		DUCT	SR-200	200		Flow % (*)												
5	Floor 1		DUCT	SR-200	200		Errors and	warnings											-
Ť	Floor 1	84	TAP	PSU-200-1	200/125	1 🛱	Ubject cor	nments											
	Floor 1		DUCT	SR-125	125		running ir	Uex						¥					
<	Floor 1		BEND-45	BU-125-45	125							- AL							
	Floor 1		DUCT	SR-125	125	()0	oiumn is vis	Die only w	nen value	s used in c	urrent rep	ort							
<	Floor 1		BEND-45	BU-125-45	125							E	Ok.			Cancel			
	Floor 1		DUCT	SR-125	125							L	OK			Cancel			
V	Floor 1	85	SUPPLY	COLIBRI C	125 (L)		40.0	3.3	90,5			90,5		0.34	100		1000	ST-22	
	Floor 1		REDUCER	RCU-200-1	200/160		80,0	2.5	0.3	0.030		105,9							
	Floor 1		DUCT	SR-160	160	2,1	80,0	4.0	3,1		1,45	105,6	96,1						
1	Floor 1		DUCT	SR-160	160	0,2	80,0	4.0				102,5							
T	Floor 1	86	TAP	PSU-160-1	160/125		40.0	3.3	10.8	1.134		102.5							
	Floor 1		DUCT	SR-125	125	1,6	40.0	3,3	2,2	1	1,37	91,8	85,4						
1	Floor 1		REND.45	BIL125.45	125		40.0	22	1.4	0 217		3.00							

Possibility to add sprinkler head directly to pipe

You can now connect sprinkler heads directly to a sprinkler pipe with a new "Side of Pipe" connection option. The connection side is defined automatically by the sprinkler orientation (pendant, upright, cidewave)





Balancing report of the ventilation network shows more information about the bends

We have got lots of requests concerning the k-factor what is used in MagiCAD ventilation balancing calculation. Usually many of these questions are related to r/D and bend type.

It is impossible to read the curvature and shape of the fitting correctly from the Revit family. This is specially true for the 3rd party fittings.

For these reasons we have added two new columns to the "Pressure data details" dialog in the balancing report: r/D and Type. These columns shows the values which are used in the calculations

DC	lanci	ngic	port.	1/D an	uiyp	. IIIC	30 00101	1113 3		13 110	valu			a	C U3	cum		aicuic		•
		3. floor		DUCT	Rect	MAGID-F	1 500x400	2,0		900	900	4,5	1,	1		0,51	184,5	172,3		
	(3. floor		BEND-90	Rect	MAGIB-F	-9 400x500			900	900	4,5	6,	8	0.561		183,4			
		3. floor	Ma Ma	aiCAD - Pr	essure Da	ta Details							×	2		0,51	176,6	164,5		
	Ū.	3. floor	~	grente in	coolic bu	to b cturis							~	7			176,4		57	100
		3. floor	av	dpt	t Da	ta source	Data table	Kfactor	r n	/D	Туре			9		0,51	144,7	132,6		
	h	3. floor	[l/s]	[Pa	a]						1.46			6	4.500		143,9			
		3. floor	900	6.8	3 DT	TU 68.3	A.3.3.2 - A.7	0.561	0).75	Round-	Round		2		0,48	99,3	89,4		
	1	3. floor															97,1			
		3. floor								_			_	3	2.162		97,1			
		3. floor									C	lose		4		0,42	83,8	77,6		
		2 floor												0	1 601		00.0			

Kv-value of a radiator valve is saved also to the radiator it controls

The new MagiCAD version saves the kv-value of the radiator valve also to the radiator it controls. This enables the possibility to add the kv-value of the valve to the radiator tag.

MC21-509 600W/0.01l/s/0.37

The location (supply or return pipe) of the radiator and stop valves can now be selected

You can now select whether the radiator valve is connected to the supply or return pipe. The selection can be made in the installation dialog and valve tool.

e					
			Manufacturer	Preview	^
Chromed brass ball valve	ALTECH	BALL VALVE 3	Altech	5	
Lockshield valves with s	RVR		ММА	-L,	
Ductile iron butterfly PN1	4029L		VIR	7	
tion					•
/e	~	O Show produ	cts from project	() Sho
e			Manufacturer	Preview	^
Pressure independent ra	RA-DV ar	ngle + RAW/RA	Danfoss	.	
Pressure independent ra	RA-DV st	raight + RA2000	Danfoss	8	
Themostatic radiator val	RA-N stra	aight	Danfoss		_
	Lockshield valves with s Ductile iron butterfly PN1 tion e Pressure independent ra Pressure independent ra Themostatic radiator val	Choined brass beinverve increases Lockshield valves with s RVR Ductile iron butterfly PN1 4029L tion e Pressure independent ra RA-DV at Pressure independent ra RA-DV st Thermostatic radiator val RA-N stre	Lockshield valves with s RVR Lockshield valves with s RVR Ductile iron butterfly PN1 4029L tion	Lockshield valves with s RVR MMA Ductile iron butterfly PN1 4029L VIR tion	Choiled blass bar value ALT LON BALE VALUE 3 Artecht Lockshield valves with s RVR MMA Ductile iron butterfly PN1 4029L VIR tion

Improvements to pipe sizing when the material changes.

When sizing the pipes towards the root, the sizing follows the size of the previous pipe. MagiCAD never chooses smaller pipe towards the root.

In case the material changes, this is problematic since it may lead to too big pipe size especially when the plastic pipe changes to metal pipe.

We have now changed the sizing logic so that if the material changes, the previous pipe size is set to zero, meaning that the smallest available pipe size from the new series is selected.



Multiple row selection now possible in the gas calculation report

It is now possible to select multiple rows by pressing control & clicking rows and by selecting row pressing shift and clicking other row.

By selecting multiple rows, it is possible to change e.g. pipe size and insulation of the selected rows.

Improvement to material parameter - add to insulation series and coating

1.3 New features for electrical

Cable Packets along existing tray systems

It is now possible to draw Cable Packets (= conduits) along cable trays with only few mouse clicks. Using this function saves a lot of time since you no longer need to draw the conduit along the cable tray that you have already modelled earlier. When starting the function you need to define which conduit series, system and offset from the cable tray is used. After that you need to select two parts on a cable tray system, and MagiCAD will generate a conduit system along the trays with the settings you specified.



Insulations for wire types

A new parameter "MC Insulation" has been added for wire types. When selecting an insulation material for a wire type in the Wire Type Management, it is also updated to the new parameter in the wire type.

Wire drawing improvements

Now it is possible to connect to the end of an existing wire when starting to draw a new wire or when ending wire drawing. Wires connected to each other are handled as separate wire segments which are physically connected to each other.



NOTE! To make an open end while drawing, click esc in the point where you want to end wire drawing. After that you can continue from that point with a new segment. This method can be used e.g. for creating a wire segment which will be hidden in the final printout view. Hiding can be done with



a view filter and by utilising a new MC Hide Wire checkbox parameter that has been added from wire instances.

In addition, all the drawing related options of the Wire tool are now stored to a local storage file, which means that you will automatically have the last used settings active when starting a new Revit session.

Symbol selection for feeder rows in switchboard schematics

Now you can select and change the schematic symbol of a feeder block found from a switchboard schematic sheet with the Set Properties function. Previously this changed also the symbol in the actual circuit in the model, but now it will only affect the preselected feeder block.



1.4 New features for schematics

ELV system schematics

Now it is possible to select the used schematic symbols for communication/data/BA devices in the dataset. Those symbols can be then be utilised for creating an ELV system schematic automatically with a couple of mouse clicks. The symbols will be linked to the corresponding objects in the model, and circuits will be linked to the schematic wires that are created in the new ELV System Diagram function.

In the dataset you can select schematic symbols for products. Multiple products can be edited simultaneously.

🕐 MagiCAD - Internal Dataset									×
⊡-Dataset:	↓ User	Description	Product	Manufacturer	Previe	Symbol	Default	Back box	Schematic Sym
Ventilation Piping Drainage	01	Heat detector	HEAT DETECT	Generic		\gg	J401 -		
- Communication and data - Systems	02	Fire alarm butto	Fire alarm	General		•	J401 -		
Connection nodes Devices and components Data main unit	03	Siren	Siren wall	General	•	\square	J401 -		
- Data sub unit - Data socket - Data device	04	Signal lamp - ce	Signal lamp for	General	1	\otimes	J401 -		
- Signal - Fire alarm	05	Smoke detector	SMOKE DETE	Generic	•	Ť	J401 -		
Other communication/data device Building automation									
Cobertoices Schematics Variable settings									
 Provision for builderswork openings Report templates for Bill of Materials Legend templates 									
Dataset settings									
Merge									Close

When creating a schematic you have four options how to draw it:

- 1. Only panels Only panels and their circuits are drawn and linked (similar solution to what we have in the Main Riser Diagram)
- 2. Panels and all devices Every panel and every device in the network is drawn to the schematic
- 3. Panels and first and last device All panels and from every circuit the first and the last device is drawn
- 4. Panels and each object type All panels and from every circuit one symbol for every device type is drawn

	📀 ELV System Di	agram		×
	Type of Schematic		Offsets	
Only panels Only panels Panels and all devices Panels and first and last device Panels and each object type	Only panels Network DP0 V FP1		V Distance between networks (w2): Distance between price (w1): Distance between panels (h1): Distance between device (h3): Separate objects on different floors: Draws a floor separation line: Distance form closest panel to floor line (h2): Show number of devices: Draw return wires for circuits:	50 mm 30 mm 30 mm 15 mm
	Direction	Fire Alarm Medium Lines	↓ h2 ↓ h2 ↓ h1 ↓ w1 ↓ w2 ↓ w2	



In the start dialogue, there are possibilities to define distances, direction, and other settings to get the schematic look like you want.

End result could be e.g. like this:



One-to-many linking option

In addition to one-to-one linking and data transfer, the Schematics module now includes an option for one-to-many linking. The new option provides increased flexibility when linking elements in a model with symbols in a schematic drawing. With one-to-many linking you can link a single symbol to a selected group of devices. This allows you to, for example, summarize the total airflow of multiple air devices and add the combined airflow to a symbol in a ventilation system schematic drawing. One-to-many linking can also be used to present a single device in multiple schematic drawings. You can define a group with all the symbol presentations and link it with the device. Changes to the device are then automatically synchronized to all the symbols, helping you to easily keep schematic drawings up-to-date during the project.





Marking of linking status in Schematics

To make it easier to keep track of linked and unlinked symbols, the Schematics module also includes a tool for marking linked and unlinked symbols. No need to configure a specific view filter just for this purpose.

Linked symbols are shown in green and unlinked symbols shown in red:





2 Resolved issues

2.1 Common

Clearance Analysis was broken in MagiCAD versions 2022 and 2022.1 when working with Revit 2022

- Problem 1: Opening the Clearance Analysis settings, confirming the selection and confirming the dialogue with OK: Revit shows as unexpected error.
- Problem 2: Start Clearance Analysis for Room/Space/Region. An unexpected error happens directly. In 2022.1 the report opens, but does not show any elements that are in the room. Updating the list leads to a crash of Revit.

Both of the problems have been corrected

A 3rd party family with a lookup table containing an inch sign cannot be installed

When trying to install a 3rd party family which contains an inch sign (") within quotation marks (" "), installation failed with an error message

Warning		0 Errors, 2 Warnings	
Constrain paramete levels, ref	ts betwee r modificat ference pla	n geometry in the family can behave u ion. To make the family reliable, cons nes, or reference lines.	unpredictably on train geometry to
			\sim

This is corrected and the object size can now have inch sign within the quotation marks.

Unable to run `Clash Checking` in some projects

"The Clash Checking didn't work in some cases. It started correctly but then jumped to an empty report. This happened with objects that had connector direction defined as expected but their coordinate system could not be determined. Also, in some cases the Real time clash checking didn't show clashes in the model on the first time running the feature in the active project. These have now been corrected."

IfcExportAs = IfcDistributionPort possibility has been taken away

IfcDistributionPort has been removed from IfcExportAs selection.

Applies to:	O Type 🔘 I	instance		
roperty set name:	MagiCAD Pset_DistributionBox			
escription:	MagiCAD's own property set for d	istribution boxes		
rt types				
ilter text	Rind IEC type to pative type			
			X	
IFC-part type	Sind inc type to native type		×	
IFC- part type IfcDuctSegmentType	Filter text	Filter text	×	
IFC- part type IfcDuctSegmentType IfcDamperType	Filter text	Filter text		
IFC- part type IfcDuctSegmentType IfcDamperType IfcDamperType	Filter text IFC type	Filter text ^ Native type		
IFC- part type IfcDuctSegmentType IfcDamperType IfcDamperType IfcDuctSilencerType	Filter text IFC type IfcDamperType (IFC2X3, IFC4)	Filter text Native type 3-port valve		
IFC- part type IfcDuctSegmentType IfcDamperType IfcDamperType IfcDuctSilencerType IfcFanType	Filter text	Filter text Native type 3-port valve Access panel		
IFC- part type IfcDuctSegmentType IfcDamperType IfcDamperType IfcDuctSiencerType IfcFanType IfcFanType	Filter text Filter text IFC type IfcDamperType (IFC2X3, IFC4) IfcDistributionPort (IFC4) IfcDistributionSystem (IFC4)	Filter text Native type 3-port valve Access panel Actuators		
IFC-part type IfcDuctSegmentType IfcDamperType IfcDuctSilencerType IfcFanType IfcBuldingElementProx IfcFaloControllerType	Filter text Filter text IFC type IfcDamperType (IFC2X3, IFC4) IfcDistributionPystem (IFC4) IfcDistributionSystem (IFC4) IfcDuctFiltingType (IFC2X3, IFC4)	Filter text Native type 3-port valve Access panel Actuators in flow damper		
IFC- part type IfcDuctSegmentType IfcDamperType IfcDamperType IfcDuctSilencerType IfcFanType IfcFanType IfcFuldingElementProx IfcFlowControllerType IfcFlowControllerType	Filter text Filter text Filter text FC type IfGDamperType (FC2X3, IFC4) IfGDetrbutionPort (IFC4) IfGDucFittingType (IFC2X3, IFC4) IfGDucFittingType (IFC2X3, IFC4)	Filter text Native type 3-port valve Access panel Actuators Ar handing equipment		



Exception in sheet manager

Corrected randomly occurring exception which happens when a new sheet is added many times very quickly to the sheet manager. Sometimes problem could have happened by adding only ten sheets but sometimes it didn't happen even when 100 sheets was added.

Unexpected error in product installation

The problem appeared only if the installed attached product (e.g. a radiator + valve) family already exists in the project, and does not contain the shared family type parameters IfcExportAs and IfcExportType.

When the parameters are missing and product is being installed, MagiCAD tries to add the missing shared family parameters to the family document, and the bug appeared only in that case. This has been corrected.

2.2 Resolved issues piping and ventilation

Ventilation sizing calculation crashes when the results are updated from the report

Crashing happened in cases where all the condition mentioned below were fulfilled.

- Automatically insert/remove split to allow sizing for tapped ducts is on
- Tapped duct is root duct
- The size of the root duct is changed in calculation
- The calculation results are updated from calculation report.
- This error has been corrected.

Pipe connection UI not fully visible in Russian language

"Use absolute height levels" text in pipe connection dialog is now wrapped to fit in the dialog.

Floorheating loop lenght was calculated incorrectly

The length was calculated correctly if the pipes are parallel to the X or Y axes of the project coordinates but otherwise too big values were calculated. This is now corrected.

2.3 Resolved issues electrical

Back boxes installed from project caused unexpected error

Previously, installing device back boxes straight from the project could cause unexpected errors in some cases.

Dialux import's auto-mapping was not working properly

The Dialux Import was not able to map existing products automatically in the dialogue in some projects even though there would be just one corresponding product found from the project. You had to manually map every imported item to make it work. This issues has now been fixed and automatic mapping should work in all projects.